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Agricultural Credit in Latin America:
External Funding Policy

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EXTERNAL FUNDING POLICY

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I. Introduction

During the 1960's resources for credit activities made up a large part of externally funded agricultural programs in Latin America. In the nine years 1960 to 1968 the Agency for International Development (AID), the Inter-American Development Bank (IDB), and the World Bank Group (IBRD) provided assistance for agricultural credit worth in excess of 727 million dollars in Latin America (Table I). IDB made the largest contribution with 348 million dollars, AID was next with 211 million, and IBRD followed with 169 million. In the case of AID, over half of the total direct assistance to agriculture in Latin America has gone into credit activities. In addition to this direct assistance, AID has helped channel to agricultural credit institutions substantial amounts of "counterpart funds" and "local currencies" resulting from Program Loans and Public Law 480 sales in several countries.^{1/} This has been especially true in Brazil, where almost 60 million dollars worth of cruzeiro counterpart funds went into agricultural credit during the 1964 to 1968 period.

Most of the assistance to agricultural credit provided by AID and IBRD has gone to Latin America. During 1960 to 1968, only ten percent of AID's loans and grants for this purpose were made outside this region. Likewise, IBRD directed 70 percent of its loans for agricultural credit to the same area.

TABLE 1

AID, IBRD, and IDB Loans and Grants
For Agricultural Credit in Latin America
1960-1968/A

(In Millions of Dollars)

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Totals/B</u>
AID		23	32	32	33	32	33	5	19	211
IBRD	5			19	4	28	49	61	4	169
IDB	<u>—</u>	<u>31</u>	<u>44</u>	<u>73</u>	<u>41</u>	<u>30</u>	<u>50</u>	<u>58</u>	<u>21</u>	<u>348</u>
TOTALS/ <u>B</u>	5	54	76	124	78	90	132	124	44	727

/A Loans, grants, and technical assistance are classified by year in which agreements were signed.

/B May not total due to rounding.

Sources: AID, Office of Controller, "Annual Reports on Capital Assistance Projects" (W-253), June 30, 1968, and various unpublished Latin American Bureau worksheets. Various annual reports of the Inter-American Development Bank, World Bank, and IDA.

As can be noted in Table II, most countries in Latin America have received substantial credit assistance. Mexico leads with 112 million dollars. Colombia and Brazil closely follow with 97 and 96 million dollars respectively. Several of the smaller countries have also received rather large amounts of external assistance: Costa Rica, Nicaragua, Paraguay, and Uruguay. In several cases, emphasis has been placed on building viable institutions, almost from scratch, which could handle large amounts of agricultural credit.

Informally, AID, IDB, and IBRD have tended to focus their assistance to agricultural credit on somewhat different activities in Latin America. IBRD, for example has stressed livestock loans. AID has emphasized technical assistance to credit institutions, supervised credit to family-sized farms, and general portfolio expansion of loans to agriculture. IDB, on the other hand, has supported colonization and farm settlement, and credit for specific agricultural inputs. Most AID loans and some IDB loans for agricultural credit include concessional arrangements for the borrowing country: low interest rates, grace periods, and long intervals for repayment.

Despite the stress which has been placed on external funding of credit programs in Latin America, little analysis has focused on the theoretical bases of these activities. The main objective of the following, therefore, is to evaluate several of the major assumptions which underlie current policy. For discussion purposes, several changes are suggested which might improve the results from externally funded credit programs.

TABLE II

External Funding of Agricultural Credit Programs
in Eighteen Latin American Countries
by AID, IBRD, IDB,
1960 to 1968

<u>Country</u>	<u>AID</u>	<u>IBRD</u> (U. S.)	<u>IDB</u> D O L L A R S)	<u>Total</u>
Argentina	10,000	15,300,000	57,136,202	72,446,202
Bolivia	8,666,000	2,000,000	12,200,000	22,866,000
Brazil	15,910,000	40,000,000	40,292,000	96,202,000
Chile	3,724,000	19,000,000	25,265,503	47,989,503
Colombia	38,500,000	16,700,000	41,930,000	97,130,000
Costa Rica	15,155,000	3,000,000	10,498,958	28,653,958
Dominican Republic	2,659,500	---	9,355,000	12,014,500
Ecuador	3,294,000	4,000,000	12,713,222	20,007,222
El Salvador	8,450,000	---	4,470,000	12,920,000
Guatemala	867,000	---	8,900,000	9,767,000
Honduras	7,988,000	---	7,000,000	14,988,000
Mexico	41,500,000	25,000,000	45,500,000	112,000,000
Nicaragua	10,400,000	---	25,030,000	35,430,000
Panama	1,240,000	---	8,900,000	10,140,000
Paraguay	6,148,000	11,100,000	10,910,000	28,158,000
Peru	27,424,000	20,000,000	16,000,000	63,424,000
Uruguay	7,857,000	12,700,000	3,600,000	24,157,000
Venezuela	<u>10,734,000</u>	<u>---</u>	<u>8,140,000</u>	<u>18,874,000</u>
TOTALS	210,526,500	168,800,000	347,840,885	727,167,385

Sources: AID, Office of Controller, "Annual Report on Capital Assistance Projects and Technical Assistance Projects" (W-253), June 30, 1968, and various unpublished Latin American Bureau Worksheets. Various annual reports of the Inter-American Development Bank, World Bank and IDA.

II. Economic Rationale of Agricultural Credit Policy in Latin America

Although generalization is somewhat difficult, several common assumptions can be noted in the agricultural credit programs in Latin America. Commitments for this purpose have been closely tied to the following beliefs:

1. Credit shortage is one of the major bottlenecks causing low land and labor productivity in traditional agriculture. Not only does a current shortage of production credit exist, but the future transformation of less developed agriculture will also require major credit infusions to fuel technological change and the on-farm-capital-formation process.

2. Concessional lending arrangements on farm credit are necessary and justified because of the following: a) Farmers have been exploited by lenders who charge exorbitantly high rates of interest. b) Most traditional farmers need special inducement to use credit and highly productive inputs. c) Low interest rates are further justified as an income transfer mechanism to improve farmers' incomes, and/or to offset fiscal or pricing policy which adversely affect agriculturalists. d) Since intermediate credit institutions in agriculture often receive funds from external agencies under concessional arrangements, these institutions are not justified in charging rates which are substantially higher.

3. Little savings capacity exists in rural areas, and marginal propensities to save are low. Almost all funds for credit, therefore, must come from outside the agricultural sector.

Given the emphasis placed on agricultural credit programs, it is disturbing to find that very little empirical evidence has been assembled to confirm these vital policy assumptions. Several of these assumptions are questionable and alternative suppositions should be seriously explored. With the existing lack of economic research on credit in Latin America, a discussion of this subject must be largely based on all too little hard evidence. The following discussion of these assumptions, therefore, is by necessity more suggestive than conclusive.

III. Agricultural Credit Shortage?

Several different types of information have been used to suggest that a serious shortage of agricultural credit exists in Latin America. The most prominent of these have been: 1) the fact that large amounts of external funds have recently been absorbed by the agricultural credit systems in Latin America, 2) comparative data showing that countries in Latin America have substantially less agricultural credit than developed countries and data showing that the amount of agricultural credit available in certain Latin American countries is less than in others, 3) the impression that high interest rates in the informal credit market indicates a shortage of credit, 4) the apparent insatiable demand for agricultural credit in most Latin American countries, and 5) the knowledge that technological change in agriculture, which is occurring in parts of Latin America, has a high credit propensity.

A. Comparative data

Comparative information suggests that institutional agricultural credit is not very scarce in Latin America. In the United States, for

example, total credit for agriculture amounted to over 53 billion dollars at the beginning of 1969.^{2/} A little less than half of this was for production and/or consumption loans (\$25.3 billion). Comparing this with the total gross value of agricultural output in the U. S. in 1968 (\$47.6 billion)^{3/} results in a ratio of .53. In Taiwan, institutional agricultural credit amounted to 8.9 billion new Taiwanese dollars (NT\$) in 1965.^{4/} Since this was 65 percent of all agricultural loans, total agricultural credit amounted to about 13.6 billion NT\$. The gross value of agricultural production in the same year, on the other hand, amounted to 37.5 billion NT\$. The ratio of total credit to product was, therefore, .37.

Table III includes similar data on value of agricultural output and institutional agricultural credit for 18 Latin American countries. Because of definitional problems regarding agricultural credit in some countries and the usual difficulties associated with deflating currencies and conversion to dollar values, absolute values in this table should be interpreted with some caution.

As can be noted in the first part of Table III, institutional agricultural credit in the 18 countries analyzed expanded in real terms rather rapidly from 1960 to 1967-1968, averaging an increase of 12 percent per year. (It will be argued later that non-institutional agricultural credit in Latin America is insignificant). In 1967-1968, about 4.7 billion dollars worth of agricultural credit was in force in these countries. Parenthetically, this was approximately the amount of farm credit in force in the U. S. Lake States of Michigan, Wisconsin, and Minnesota in 1967.^{5/}

TABLE III
Domestic Credit Claims on Private Sector,
Agricultural Credit, Gross Domestic-Product from Agriculture,
with Indexes, Rates of Change, and Ratios
for Eighteen Latin American Countries
1960 and 1968

Country Year	<u>Domestic Credit Claims on Private Sector/1</u>		<u>Agricultural Credit Year-end Balances/3</u>		(E) <u>C</u> A	<u>Gross Domestic Product from Agriculture/4</u>		(H) <u>C</u> F
	(A) Rate of Change	(B) Index 1960=100	(C) Millions of Dollars /2	(D) Index 1960=100		(F) Millions of Dollars/2	(G) Index 1960=100	
<u>18 Country Totals</u>								
1960	10,931	100	2,439	100	.22	10,717	100	.23
1967 or 1968	15,106	138	4,737	194	.31	13,130 (65-67)	123	.36
Average Annual Rate of Change		5%		12%			3%	
<u>Argentina</u>								
1960	2,380	100	393	100	.17	2,072	100	.19
1968	2,833	112	555	114	.20	1,995 ('67)	96	.28
Average Annual Rate of Change		1%		2%			0%	
<u>Bolivia</u>								
1960	8	100	2	100	.25	123	100	.02
1968	32	400	15	750	.47	120 ('66)	98	.13
Average Annual Rate of Change		50%		81%			0%	
<u>Brazil</u>								
1960	3,557	100	606	100	.17	2,987*	100	.20
1968	4,311	121	1,417	234	.33	3,845* ('65)	129	.37
Average Annual Rate of Change		3%		17%			6%	

Country Year	Domestic Credit Claims on Private Sector/ ¹		Agricultural Credit Year-end Balances/ ³		(E) C A	Gross Domestic Product from Agriculture/ ⁴		(H) C F
	(A) Millions of Dollars/ ²	(B) Index 1960=100	(C) Millions of Dollars/ ²	(D) Index 1960=100		(F) Millions of Dollars/ ²	(G) Index 1960=100	
<u>Chile/⁵</u>								
1960	415	100	127	100	.31	221*	100	.57
1968	611	147	213	167	.35	276* ('67)	125	.77
Average Annual Rate of Change		6%		7%			4%	
<u>Colombia</u>								
1960	646	100	231	100	.36	1,227	100	.19
1968	1,101	170	386**	167	.35	1,499 ('67)	122	.26
Average Annual Rate of Change		9%		8%			3%	
<u>Costa Rica</u>								
1960	114	100	68	100	.60	110	100	.62
1968	143	125	104	153	.73	156 ('67)	142	.67
Average Annual Rate of Change		3%		7%			6%	
<u>Dominican Republic</u>								
1960	103	100	21	100	.20	221	100	.10
1968	174	169	57	271	.33	244 ('67)	110	.23
Average Annual Rate of Change		9%		21%			2%	
<u>Ecuador</u>								
1960	158	100	20***	100	.13	287	100	.07
1968	224	142	48***	240	.21	356 ('67)	124	.13
Average Annual Rate of Change		5%		18%			3%	

Country Year	<u>Domestic Credit Claims</u> <u>on Private Sector</u> ^{/1}		<u>Agricultural Credit</u> <u>Year-end Balances</u> ^{/3}		(E) C A	<u>Gross Domestic Product</u> <u>from Agriculture</u> ^{/4}		(H) C F
	(A) Millions of Dollars ^{/2}	(B) Index 1960=100	(C) Millions of Dollars ^{/2}	(D) Index 1960=100		(F) Millions of Dollars ^{/2}	(G) Index 1960=100	
<u>El Salvador</u>								
1960	140	100	40	100	.29	178	100	.22
1967	191	136	51	128	.27	231	130	.22
Average Annual Rate of Change		5%		4%			4%	
<u>Guatemala</u>								
1960	94	100	39**	100	.41	325**	100	.12
1968	220	234	52	133	.24	404 ('67)	124	.13
Average Annual Rate of Change		17%		4%			3%	
<u>Honduras</u>								
1960	35	100	7	100	.20	163	100	.04
1968	75	214	31	449	.41	193 ('67)	118	.16
Average Annual Rate of Change		14%		44%			2%	
<u>Mexico</u>								
1960	1,145	100	472	100	.41	1,210****	100	.39
1968	1,865	163	1,065	226	.57	1,564****('67)	129	.68
Average Annual Rate of Change		9%		16%			4%	
<u>Nicaragua</u>								
1960	52	100	32	100	.62	115**	100	.28
1968	142	273	85	267	.60	159 ('67)	138	.53
Average Annual Rate of Change		22%		21%			5%	

Country Year	<u>Domestic Credit Claims</u> <u>on Private Sector</u> ^{/1}		<u>Agricultural Credit</u> <u>Year-end Balances</u> ^{/3}		(E) C A	<u>Gross Domestic Product</u> <u>from Agriculture</u> ^{/4}		(H) C F
	Rate of Change	(A) Millions of Dollars ^{/2}	(B) Index 1960=100	(C) Millions of Dollars ^{/2}		(F) Millions of Dollars ^{/2}	(G) Index 1960=100	
<u>Panama</u>								
1960		99	100	6**	.06	98	100	.06
1967		226	228	23	.10	156	159	.15
Average Annual Rate of Change			18%		40%		8%	
<u>Paraguay</u>								
1960		28	100	10	.36	123	100	.08
1968		83	296	33	.40	148 ('67)	120	.22
Average Annual Rate of Change			25%		29%		3%	
<u>Peru</u>								
1960		343	100	116	.34	537	100	.22
1967		444	129	160	.36	641	119	.25
Average Annual Rate of Change			4%		5%		3%	
<u>Uruguay</u>								
1960		420	100	59	.14	222	100	.27
1967		301	72	18	.06	242	109	.07
Average Annual Rate of Change			-4%		-10%		1%	
<u>Venezuela</u>								
1960		1,197	100	190	.16	498	100	.38
1968		2,172	128	448	.21	901 ('67)	180	.50
Average Annual Rate of Change			10%		17%		11%	

*Net domestic product rather than gross domestic product.

**Includes some data estimated by the author on Colombia, Guatemala, and Nicaragua.

***Data is for new loans made during the year, rather than year-end balances.

****Expressed in 1950 market prices and converted to dollars, using 1950 exchange rate of 11.57 pesos per dollar.

/1 Taken from International Monetary Fund, International Financial Statistics, various issues.

/2 Local currency values in each case, except some data for Mexico (see above) and Chile (see footnote 4) were adjusted by the yearly consumer price index figures with base in 1963, published by the International Monetary Fund, International Financial Statistics, various issues. The 1963 exchange rate of local currency for dollars was then used to convert to an "adjusted dollar value." The figures in the table, with the exceptions noted, therefore, show the 1963 purchasing power of local credit expressed in dollars.

/3 Figures on agricultural credit represent institutional lending and were taken mostly from annual or monthly reports of each country's central bank. In several cases, annual reports of individual banks were used, and in one or two cases, unpublished Agency for International Development reports were used.

/4 United Nations, Yearbook of National Account Statistics, 1968, Vol. I (New York: United Nations, 1969) various pages.

/5 Local currency values in Chile were adjusted by a yearly price index with base in 1965. The 1965 exchange rate of escudos was then used to convert each year to an "adjusted dollar value". The figures for Chile, therefore, show 1965 purchasing power of escudos expressed in dollars.

It is also interesting to note that the total value of agricultural production credit in these 18 countries in 1967-1968 was equal to about one-third of the aggregate value of total agricultural production, about two-thirds the ratio found in the United States for non-real estate credit.^{6/} But, at the same time, it is more or less equal to the credit-to-product ratio described for Taiwan.

A review of the data for each country in Table III also shows a good deal of difference among countries in the ratio of agricultural credit to total value of agricultural production. Chile, Costa Rica, Mexico, Nicaragua, and Venezuela all had agricultural credit in 1967-1968 equal to or greater than half the value of their agricultural production in 1967-1968.

It is interesting to note as a side light that external funds for credit (Table II) represented a substantial part of the increase in the money available for agricultural credit in Latin America over the 1960 to 1967-1968 period (Table III). For the 18 countries studied, the value of institutional agricultural credit increased from approximately 2.4 billion dollars worth in 1960 to 4.7 billion in 1967-1968. The .7 billion dollars provided by external funds was equivalent to about one-third of the increase. As can be noted in comparing data in Tables II and III, a major part of the increase in credit in several cases can be largely explained by the amount of external funds brought into the country: Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Nicaragua, Panama, Paraguay, and Peru.

Additional information in Table III suggests that there are substantial differences among countries in Latin America with respect to,

not only growth in credit funds for agriculture, but also changes in the portions of total institutional credit in the country directed to agriculture. Bolivia, Brazil, The Dominican Republic, Ecuador, Honduras, and Mexico have substantially increased the share of total credit received by agriculture (Column E). Colombia, El Salvador, Guatemala, Nicaragua, and Uruguay, on the other hand, have decreased the share of credit received by agriculture. Several countries have surprisingly high ratios of agricultural-credit-to-total-domestic-credit: Costa Rica, Mexico, and Nicaragua. Several countries also have rather low ratios: Panama and Uruguay.

The relative adequacy of the agricultural credit system in some of the Latin American countries is also suggested by the data in Column H, Table III. As mentioned earlier, Chile, Costa Rica, Mexico, Nicaragua, and Venezuela have recently had high ratios of agricultural credit to value of agricultural production. Bolivia, Brazil, Ecuador, and Uruguay have had low ratios, however.

Interestingly, tests of significance on rank-order and product-moment correlation coefficients relating average annual rates of growth in institutional agricultural credit (in Column D, Table III) and average annual rates of growth in gross domestic product from agriculture (in Column G, Table III) showed no dependency. Similar tests of the same coefficients but relating average annual rates of growth in domestic credit claims on private sector (in Column B, Table III) and average annual rate of growth in agricultural credit (in Column D, Table III) suggested a rather close relationship. That is, looking at Latin America as a whole, high rates of growth in agricultural credit are not closely

associated with rapid growth in agricultural output. This may, in part, be due to time lag questions.

Unfortunately, the data on the flow of external funds to the agricultural credit systems and the comparative information on amounts of credit in Latin America versus the more developed countries are not conclusive in terms of verifying an agricultural credit shortage. It might be argued that production possibilities are such in Latin America that additional credit cannot be efficiently used; that is, many farmers are operating on low profile production functions.

B. Characteristics of informal credit markets:

Several characteristics of the informal credit system are also often cited as evidence supporting the claim that agricultural credit is in very short supply.^{7/} On close analysis, however, this evidence appears to be rather inconclusive with regard to Latin America.

A review of studies on informal credit systems shows that relatively little information is available on Latin American conditions; most of the conventional wisdom on this topic appears to stem from experience in other regions of the world, especially Asia.^{8/} It has been usually held, for example, that the informal system (e.g., private individuals, money lenders, and merchants) provide a large part of total rural credit in less developed areas. In India, for example, studies have shown that less than 20 percent of total rural credit is furnished by the formal credit system.^{9/} In Thailand, only five percent of the agricultural credit was reported coming from institutional lenders.^{10/}

Less comprehensive data on several Latin American countries suggest a much smaller role for informal credit in the total agricultural

credit system. In Ecuador Stitzlein found only about ten percent of the total credit used by about 1,000 farmers was supplied by non-institutional sources.^{11/} Some two-thirds of the farms in his sample were less than 20 hectares in size. He also found that only about half of the farmers surveyed used credit. Erven found even less non-institutional credit in southern Brazil. He surveyed 233 commercial crop and hay farms and found that only three percent of their total agricultural credit came from non-institutional sources.^{12/} In the same general area of Brazil, but among small farm operators, Rask and Rao found only one-third of total farm credit among 200 farms came from non-institutional sources.^{13/} Nisbet's study of informal rural credit in Chile showed that non-institutional credit made up only ten percent of total credit among the farmers he surveyed.^{14/} Tinnermeier also found that non-institutional farm credit was not significant among almost 200 farmers in a colonization area of Colombia.^{15/} Montero, likewise, found non-institutional credit to be insignificant for 239 farmers he interviewed in a major agricultural region of Colombia.^{16/} His sample included large as well as small farms. Although non-institutional loans made up about one-quarter of the number of loans held by these farmers, over a four-year period they equalled less than four percent of total funds borrowed. Anthropological studies by Nash and Tax of Indian communities in Central America showed that institutional credit was almost totally lacking, but they also found that only modest amounts of non-institutional credit were used.^{17/} A study in Costa Rica of 320 farms in 1964-1965 showed that only 20 percent of total credit used by these farms was provided by the informal credit system.^{18/}

If the above cited studies are representative, it suggests that the amount of non-institutional credit in rural areas of Latin America is relatively unimportant. If there is a large segment of economically justified demand for agricultural credit, the non-institutional money markets have not exploited the opportunity. (Does the lack of a sizeable informal credit system indicate a deficiency in effective demand?)

High interest rates in the informal credit market also have often been cited as indicating credit shortage. That is to say, demand pressures for credit are large. These pressures in turn face a small pool of loanable funds embodied in a highly inelastic supply schedule. It is, therefore, concluded that competition for these funds has driven interest rates up and resulted in monopoly profits for owners of loanable funds.^{19/}

Again, a review of various studies which have treated the interest rates charged in the informal credit markets in rural Latin America strongly suggest that interest rates are weak indicators of production credit shortage. Several aspects of this need to be considered: First, it may be that the importance of extremely high rates of interest in the informal credit markets in Latin America has been greatly overstated. Nesbit showed in Chile, for example, that a majority of the loans made within the informal credit system which he studied were lent at zero or negative real rates of interest.^{20/} Stitzlein showed in his Ecuadorian study that an average annual nominal rate of interest of less than 20 percent was charged on non-institutional loans among the farmers he studied.^{21/} Over 40 percent of the non-institutional loans in his study carried no interest charge.^{22/} It may well be that the prevalence of

high interest rates in the informal credit market, at least in Latin America, has been grossly overstated.

Another aspect of this question is that relatively high rates of interest may be justified on loans in the informal credit market. The bulk of these loans are small, short term, unsecured, and mostly for consumption. Lenders' administrative costs are, therefore, high. Similar type loans in developed countries also carry relatively high rates of interest. Moreover, high interest rates may be justified because of the high opportunity cost of capital in developing countries, lenders' risks, and the high rates of inflation which are common in a number of Latin American countries (Table IV)^{23/}

In conclusion, an analysis of the informal credit markets in Latin America does not present firm proof that a significant shortage of production credit exists in the rural areas. It may well be that these informal credit markets are not large because of the lack of demand for their services. It is also apparent that the high-interest-rate-problem has been oversold, and that current interest rates charged in this market may be rather modest considering the nature of the services rendered. It may well be that a good bit of the current non-institutional credit is supplying a market which is largely unrelated to the market for productive agricultural inputs. Thus, marginal costs for credit in this market may be of little or no value in determining the marginal productivity of capital for productive agricultural inputs.

In conclusion, characteristics of the informal credit market in Latin America do not provide firm evidence of serious credit shortage for productive agricultural purposes.

C. Strong demand for institutional credit

It is rather common throughout Latin America for agricultural credit requests to substantially exceed available funds. From this, it has been concluded that a good deal of economically justified loans are not made because of credit shortage.

It has also been common throughout most of Latin America, however, to price institutional agricultural credit at concessional rates of interest. In Colombia, for example, most institutional agricultural credit is loaned at rates of interest within the range of seven to ten percent. Borrowers of capital in the non-agricultural sector, on the other hand, pay from 18 to 25 percent for their funds. Hardly a country in Latin America does not have similar arrangements. If the marginal opportunity costs of capital in the country are in the general range of the charges on credit which non-agriculturalists are willing to pay, it is not surprising that agricultural credit is so popular.

A further reason for the strong demand for institutional agricultural credit can be illustrated from data shown in Table IV. During the period of 1961-1968, six of the Latin American countries experienced average rates of inflation in excess of ten percent per year. These countries, in turn, extended almost sixty percent of the agricultural credit during 1967-1968 in Latin America (Table III). A major portion of the institutional agricultural credit in Argentina, Brazil, Chile, Colombia, Peru, and Uruguay during the 1960's was lent at real rates of interest which were negative. That is, nominal rates of interest were less than monetary depreciation. It is little wonder then that farmers are clamoring for negatively priced agricultural credit. Without an

Table IV

Annual Percentage Changes in Consumer Prices Indexes
in Various Latin American Countries, 1961-1968

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Annual Average 1961-68</u>
Argentina	19	32	28	18	38	30	26	10	25
Bolivia	7	3	-1	11	5	11	3	3	5
Brazil	43	61	81	85	41	46	26	25	51
Chile	9	27	45	39	26	17	21	28	27
Colombia	5	5	46	2	15	14	7	6	13
Costa Rica	0	6	2	2	-1	2	2	3	2
Dominican Republic	-3	10	9	2	-2	0	2	0	2
Ecuador	3	4	5	3	6	3	6	3	4
El Salvador	-4	2	2	2	0	-2	2	2	1
Guatemala	3	-1	1	-1	-1	3	-1	4	1
Honduras	0	5	2	4	4	4	-4	5	3
Mexico	-3	3	0	3	5	4	3	2	2
Nicaragua	-2	0	3	2	4	5	0	n/a	2
Panama	1	0	0	2	1	0	1	2	1
Paraguay	0	0	2	3	0	0	1	3	1
Peru	7	5	10	12	16	8	19	10	11
Uruguay	10	11	44	35	88	50	90	126	57
Venezuela	1	-2	1	-2	5	0	-1	0	1

Source: International Monetary Fund, International Financial Statistics,
IMF, May, 1969.

adjustment to efficiency prices, it is difficult to determine the economic effectiveness of the current strong demand for credit.

D. On-farm capital formation and new technology requires credit

Again, it has been rather widely held that large doses of credit are necessary to facilitate rapid on-farm capital formation and technological change in agriculture. This view has been recently challenged by some who argue that development of appropriate new technology must precede expansion of the credit system.^{24/} While it is apparent that technological barriers are important in a number of situations around the world, and that high priority should be given to research aimed at resolving these barriers, it may well be that in other circumstances credit can be the leading edge of technological-change policy. Rask and Rao have pointed out, for example, that agricultural problems tend to be very heterogeneous and that uniform policy prescriptions are often not appropriate.^{25/} In a study of farms in southern Brazil they found that similar-sized livestock ranches and crop farms had approximately the same amount of capital investment, but that credit use was 20 times larger on the crop farms. Their study suggests that among this particular group of farms, large doses of credit played a leading role in the change from livestock to crop farming.

While data is rather inconclusive with regard to widespread agricultural credit shortage in Latin America, the Rask-Rao information suggests that credit bottlenecks may be occurring where the modernization process is most intense.

IV. Need for Concessional Interest Rates

a. Implications for farmers

As already suggested, there have been a number of reasons used for justifying low rates of interest on institutional credit. For example, the existence of high interest rates for informal credit is often cited as a reason. It was argued earlier that the importance of exploitive rates of interest on informal credit in Latin America has been greatly overstated. High interest rates in the informal credit market should be dismissed as a reason for concessional rates in the formal system.

An additional justification for low interest rates has been that they provide the special inducement necessary to convince farmers to adopt productive inputs which require credit use. But, do farmers need to be bribed to do something which is supposedly profitable? A rather large amount of recent research has strongly suggested that farmers efficiently allocate the resources at their disposal, including credit.^{26/} The recent rapid adoption of new cereal varieties in Asia also strongly suggests that farmers in LDC's will very rapidly adopt new technology if it pays.^{27/} A low-interest-rate bribe may simply induce farmers to make expenditures which would otherwise not be in his economic best interests and/or to use credit for non-productive purposes.

Low interest rates for farmers have also been justified as an income transfer mechanism. That is, farmers are given a break on credit because they are poor; or farmers are given concessional interest rates to partially offset national pricing or fiscal policy which adversely affects farm income.

Most of the institutional credit in Latin America is currently going to relatively large landowners who often have other occupations outside of farming, and since the income subsidy is tied to credit access, it appears that few of the benefits from concessional interest rates are filtering down to the rural poor. It is also an unanswered question as to how much of this fungible credit is leaking out of the agricultural sector through multiple occupational structures. Aside from the political and administrative advantages associated with the "invisible income transfers" through concessional interest rates, the practice has little in its favor. Direct cash payments, development of new technology, subsidizing the price of specific inputs, or adjusting pricing or taxing policies would seem to be a more efficient means of easing farm income problems.

b. Implications for credit agencies

The figures in Table V indicate how rapidly the real value of credit funds can be "washed out" at various negative rates of interest. For example, if the rate of inflation in a country is averaging about 25 percent per year, and farmers are charged a nominal rate of interest of ten percent, then a negative real rate of interest of fifteen percent per year is implied. As can be seen in Table V, a negative rate of interest of fifteen percent would result in the real value of credit capital being "washed out" to half its original value in a little over four years. As suggested earlier, the high rates of inflation in Argentina, Brazil, Chile, Colombia, Peru, and Uruguay (Table IV) have resulted in negative real rates of interest being charged on most institutional agricultural credit. In this light, it is rather remarkable that these

Table V
Number of Years Until Credit Funds Depreciate
to Half-Value at Various Negative
Rates of Interest

<u>Negative Interest (R)</u>	<u>Conversion Factor (i)</u>	<u>Half-value in Years (n)</u>
.01	.0101	69.0
.02	.0204	35.0
.03	.0309	23.0
.04	.0417	17.0
.05	.0526	13.0
.10	.1111	6.6
.15	.1760	4.3
.20	.2500	3.1
.50	1.0000	1.0

Note: R = Rate of depreciation of real value of credit funds, or the negative rate of interest.

$$i = 1 - \frac{1}{1-R}$$

$$V^n = \frac{1}{(1+i)^n}$$

countries, with the exception of Uruguay, were able to substantially increase the real value of their credit portfolios during the 1960's. Because of the capital washout, a much larger amount of capital has been transferred into agricultural credit systems than is indicated in Table III by the difference between dollar value of credit in 1960 and dollar value of credit in 1967-1968.

This capital erosion has several adverse effects on lending agencies. It tends to decrease the real value of the loan portfolio, of course, but it also forces the agency to look to external assistance for funds to increase portfolio real size. Under conditions where positive real rates of interest are being charged, lending agencies can help build their portfolio by generation of some internal profits. Because of low interest rate policy throughout most of Latin America, internal profits have been negligible. In addition, abstracting from the capital erosion problem, interest rates are often too low to pay out-of-pocket expenses. This is especially true where intensive supervision is tied to credit and overhead costs may run as high as ten to twenty-five percent of the loan portfolio per year.^{28/} Since overhead costs cannot be covered under these conditions, administrators are not "under-the-gun" to run a tight ship with regard to other administrative matters. Flabby administration can result.

It could also be argued that by holding the interest rates down, governments have kept the private banking system and the informal credit market from providing substantial amounts of credit to agriculture. Governments, thus, are forced to try to legislate the granting of agricultural credit by private banks.^{29/}

In summary, there does not appear to be a strong set of reasons for granting concessional rates of interest to agriculture in Latin America.

V. Rural Savings Capacity

It has been rather widely held that the savings capacity among rural people is very low. It has also been assumed that these rural residents have low marginal propensities to save.^{30/} Several important policy conclusions have followed from these assumptions: (1) little investment takes place on farms in less developed countries, (2) most investment which does take place must be financed by credit provided from sources outside of agriculture, (3) mobilization of capital from the agricultural sector must be largely done on an involuntary basis, and (4) since little savings capacity exists, institutions and incentives to save are not necessary in rural areas.

With these kinds of assumptions, it is not surprising that international lending agencies have not encouraged countries to attempt to mobilize rural savings by offering favorable rates of interest as well as institutional forms.

As can be noted in Table VI, time deposits in savings institutions in a number of Latin American countries are relatively insignificant.^{31/} This is especially true in countries where rapid rates of inflation have occurred. Monetary depreciation coupled with fixed low interest rates have provided little incentive for people to institutionalize savings.^{32/} In several countries a conscious policy of inflation has been followed as a substitute for voluntary savings.

It is particularly interesting to note the differences among countries in the ratios of savings to domestic-credit-claims-on-private-sector. In the U. S., for example, institutional savings makes up almost 90 percent of the value of domestic-credit-claims-on-private-sector. In Taiwan, the ratio is almost unity. It can be noted in Table VI, however, that countries such as Brazil, Colombia, Chile, Uruguay, and Peru have very small ratios of savings to credit. It is probably fair to assume that very little of their savings is coming from the rural area.

Unfortunately, little information is available on how responsive rural people in Latin America might be to increases in the rates of interest paid on savings. Recent experience in Korea, however, suggests that the supply of savings may be rather elastic with respect to interest rates. In the last part of 1965, the Monetary Board of the Republic of Korea approximately doubled the rate of interest which could be paid on time deposits. Since this interest rate reform, the amount of time and savings deposits has doubled each year.^{33/} Not only has there been a rapid increase in amount deposited for savings, but also a rapid increase in number of savings accounts. In September, 1965, before the interest rate reform, fewer than 150,000 savings accounts existed in South Korea. By December, 1968, over one million savings accounts had been opened. Unfortunately, there is no information available on how much of this dramatic increase in savings came from the rural area. There is little reason to think, however, that rural people did not participate in this in a major way.

Table VI
Domestic Credit Claims on Private Sector
Time and Savings Deposits, with Indexes, Rates of Change, and Ratios
for Eighteen Latin American Countries
1960 to 1968

Country Year	Domestic Credit Claims on Private Sector /1		Time & Savings Deposits Year-End Balances /1		(E) $\frac{C}{A}$
	(A) Millions of Dollars/2	(B) Index 1960=100	(C) Millions of Dollars/2	(D) Index 1960=100	
Rate of Change					
<u>18 Country Totals</u>					
1960	10,931	100	3,190	100	.29
1967 or 1968	15,106	138	6,398	201	.42
Average Annual Rate of Change		5%		13%	
<u>Argentina</u>					
1960	2,380	100	823	100	.35
1968	2,833	112	1,532	186	.54
Average Annual Rate of Change		1%		11%	
<u>Bolivia</u>					
1960	8	100	1	100	.13
1968	32	400	12	1,200	.38
Average Annual Rate of Change		50%		125%	
<u>Brazil</u>					
1960	3,557	100	281	100	.08
1968	4,311	121	550	196	.13
Average Annual Rate of Change		3%		12%	
<u>Chile</u>					
1960	415	100	97	100	.23
1968	611	147	188	194	.31
Average Annual Rate of Change		6%		12%	
<u>Colombia</u>					
1960	646	100	180	100	.28
1968	1,101	170	248	138	.23
Average Annual Rate of Change		9%		5%	
<u>Costa Rica</u>					
1960	114	100	16	100	.14
1968	143	125	31	194	.22
Average Annual Rate of Change		3%		12%	

Country Year	Domestic Credit Claims on Private Sector /1		Time & Savings Deposits Year-End Balances /1		(E) $\frac{C}{A}$
	(A) Millions of Dollars/2	(B) Index 1960=100	(C) Millions of Dollars/2	(D) Index 1960=100	
<u>Dominican Republic</u>					
1960	103	100	31	100	.30
1968	174	169	71	229	.41
Average Annual Rate of Change		9%		16%	
<u>Ecuador</u>					
1960	158	100	21	100	.13
1968	224	142	53	252	.24
Average Annual Rate of Change		5%		19%	
<u>El Salvador</u>					
1960	140	100	21	100	.15
1967	191	136	93	443	.49
Average Annual Rate of Change		5%		49%	
<u>Guatemala</u>					
1960	94	100	36	100	.38
1968	220	234	135	375	.61
Average Annual Rate of Change		17%		34%	
<u>Honduras</u>					
1960	35	100	19	100	.54
1968	75	214	50	263	.67
Average Annual Rate of Change		14%		20%	
<u>Mexico</u>					
1960	1,145	100	833	100	.73
1968	1,865	163	1,879	226	1.01
Average Annual Rate of Change		9%		16%	
<u>Nicaragua</u>					
1960	52	100	5	100	.10
1968	142	273	30	600	.21
Average Annual Rate of Change		22%		63%	
<u>Panama</u>					
1960	99	100	29	100	.29
1967	226	228	85	293	.38
Average Annual Rate of Change		18%		28%	

Country Year	<u>Domestic Credit Claims</u> <u>on Private Sector/1</u>		<u>Time & Savings Deposits</u> <u>Year-End Balances/1</u>		(E) C A
	(A) Millions of Dollars/2	(B) Index 1960=100	(C) Millions of Dollars/2	(D) Index 1960=100	
<u>Paraguay</u>					
1960	28	100	3	100	.11
1968	83	296	30	1,000	.36
Average Annual Rate of Change		25%		113%	
<u>Peru</u>					
1960	343	100	168	100	.49
1968	444	129	243 ('67)	145	.55
Average Annual Rate of Change		4%		6%	
<u>Uruguay</u>					
1960	420	100	131	100	.31
1967	301	72	69	53	.18
Average Annual Rate of Change		-4%		-6%	
<u>Venezuela</u>					
1960	1,197	100	495	100	.41
1968	2,172	128	1,099	222	.51
Average Annual Rate of Change		10%		15%	

/1 Taken from International Monetary Fund, International Financial Statistics, various issues.

/2 Local currency values in each case were adjusted by the yearly consumer price index figures with base in 1963, published by the International Monetary Fund, International Financial Statistics, various issues. The 1963 exchange rate of local currency for dollars was then used to convert to an "adjusted dollar value." The figures in the table, therefore, show the 1963 purchasing power of local currency expressed in dollars.

In the early 1950's, Taiwan was also quite successful in mobilizing voluntary savings by raising interest rates.^{34/} Less well-documented cases of recent substantial increases in institutional savings resulting from interest incentives have also occurred in Indonesia and Turkey.

It may well be that if rural people in Latin America had adequate economic incentive and an institutional form in which to save, substantial amounts of local capital could be mobilized to significantly complement external funds for credit. Currently, rural people must hold savings in land investments or in livestock. The growth in credit unions during the past five years in Latin America shows that some additional capital can be mobilized if institutional forms are simply available. Between 1963 and 1968, funds in credit unions in Latin America increased from less than eight million dollars worth to about 57 million dollars.^{35/} Approximately 30 to 40 percent of this has been raised in rural areas.

Present policy in Latin America results in large subsidies to credit users and yet almost completely discourages institutional savings. Does a significant amount of potential savings exist in rural areas of Latin America? Evidence from studies in Bolivia, Brazil, and Colombia suggest that rural savings capacity does exist.^{36/} Could mobilization of these savings, especially in areas where rapid technological change is occurring -- southern Brazil and the Cauca Valley of Colombia, for example -- provide a substantial portion of the agricultural credit needs? The possibilities look favorable enough to warrant focusing some policy attention on this area.

VI. Conclusions and Recommendation

In the preceding, I have attempted to make the following points:

(1) Large amounts of external funds have been channeled into agricultural credit in Latin America during the last decade and this, plus major inputs of local resources have resulted in a substantial increase in the availability of agricultural credit in most Latin American countries. (2) Despite the magnitude of the resources transferred into agricultural credit systems, little attention has been directed to the economic rationale used to construct current policy in this regard. Little emphasis has been placed on efficiency prices for credit. Erosion of the real value of credit funds and inefficient resource allocation have resulted. (3) The amount of informal credit in rural areas of Latin America is apparently rather insignificant in comparison with that available from institutional sources. It is not entirely clear as to why this is so, but there is some indication that heavily subsidized institutional credit may have resulted in non-institutional credit atrophy. (4) For Latin America as a whole, agricultural credit needs at efficiency prices have probably been exaggerated. Nevertheless, in cases where rapid technological change is possible, credit shortage can be a major block. Substantial amounts of credit are needed at points where technological change is rapidly occurring. (5) Little emphasis has been placed on mobilizing rural savings for credit use.

Policy Recommendations

During the 1960's, aid agencies helped to sharply expand the amount of institutional agricultural credit in Latin America. It is rather clear, however, that some changes in current policy could make these

credit programs more efficient. In developing credit policy, for example, too little attention has been paid to the heterogeneity of agriculture. Careful attention must be directed to an examination of the effective demand for agricultural credit among various types of farms in Latin America. When interest rates do not reflect efficiency prices, market demand for credit is a poor indication of the economically efficient demand. Hard data is needed on where credit shortage is a major bottleneck and on where technological change will require large doses of credit. Other policies must be designed to address rural problems not related to production credit shortage.

In line with this, aid agencies need to encourage Latin American governments to move toward efficiency prices for agricultural credit, and to guard against credit capital erosion. This will generally involve increasing the rates of interest on agricultural loans rather substantially. The rate of interest should reflect the opportunity cost of capital to society and cover credit administration costs, plus include a factor for monetary depreciation and possible defaults. In cases where inflationary pressures are strong, adjustments in the interest rate may be impractical, and some sort of monetary correction on principal may be necessary. Where income transfers to agriculture are desirable, a number of instruments other than subsidized credit appear to be more efficient.

A general increase in rates of interest charged on agricultural credit would necessitate, in many cases, a restructuring of farm pricing and monetary policy. Aid agencies would need to face the Latin American countries with a united front in order to encourage such changes.

Attention should also be directed toward activities which encourage the growth of informal credit. In most cases, individuals who provide this credit have been cast as goblins and gnomes. A significant informal credit market can facilitate the development process. Accelerated rural development will likely lead to an expansion in informal credit, but it is unlikely that this expansion can be very rapid as long as institutional credit is rather plentiful as well as heavily subsidized.

Lastly, it is time that aid agencies and Latin American governments begin to encourage voluntary mobilization of rural savings. Voluntary savings capacity in rural areas may be significant. Moreover, there is no reason to think that marginal propensities to save among rural residents are significantly different from the rest of the society. Where rapid technological change is occurring, there is reason to think that part of the resulting increase in income would be saved in institutions if proper institutions were available in rural areas, if incentive rates of interest were paid on savings, and if appropriate insurance was provided against institutional failure. Mobilized rural savings in the future should provide a major portion of the increase in funds for agricultural credit in Latin America.

FOOTNOTES

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- 1/ Readers not familiar with counterpart funds and local currencies may wish to refer for additional information to Alexis E. Lachman, The Local Currency Proceeds of Foreign Aid, (Paris, Development Centre of the Organization for Economic Co-operation and Development, 1968)
- 2/ U. S. Department of Agriculture, Economic Research Service, Agricultural Finance Review, April, 1969, p. 1.
- 3/ U. S. Department of Commerce, Bureau of The Census, Statistical Abstract of the United States: 1969, U. S. Government Printing Office, Washington, D. C., 1969, p. 609.
- 4/ Raymond P. Christensen, Taiwan's Agricultural Development: Its Relevance for Developing Countries Today, Foreign Agricultural Economic Report No. 39, U. S. Department of Agriculture, Washington, D. C., April, 1968, pp. 56-60.
- 5/ U. S. Department of Agriculture, Economic Research Service, Agricultural Finance Review, April, 1969, pp. 3 and 24.
- 6/ In interpreting data on agricultural credit in Latin America, it is important to note that little of this credit is long-term, relatively little goes for real estate credit, in some cases, a substantial amount may be used as intermediate marketing credit, a major part of the smaller loans are often used for consumption purposes, and some countries have substantial amounts of loans on their books which are in default.
- 7/ In this paper, the informal credit system is defined as that outside the banking system, or officially sponsored cooperative credit programs.

- 8/ A concise statement of the commonly held views on informal credit systems is contained in U Tun Wai, "Interest Rates Outside the Organized Money Markets of Underdeveloped Countries," Staff Papers of the International Monetary Fund, Vol. VI, 1957-1958, pp. 80-142. Also note Clifton R. Wharton, Jr., "The Infrastructure for Agricultural Growth," Agricultural Development and Economic Growth, edited by H. M. Southworth and B. F. Johnston, (Ithaca, N. Y.: Cornell University Press, 1967) p. 126.
- 9/ Reserve Bank of India, Rural Credit Follow-up Survey, 1959-60 -- General Review Report (Bombay: Reserve Bank of India, 1962) pp. 29-31.
- 10/ Pantum Thisyamondol and others, Agricultural Credit in Thailand: Theory, Data, Policy (Bangkok: Kasetsart University, 1965) p. 37.
- 11/ John N. Stitzlein, The Characteristics and Significance of The Non-Institutional Credit Market in Rural Ecuador, AFC Research Publication No. 117, The Agricultural Finance Center, The Ohio State University, December, 1967, p. 13.
- 12/ Bernard Lee Erven, "An Economic Analysis of Agricultural Credit and Policy Problems, Rio Grande do Sul, Brazil", unpublished Ph. D. dissertation, Department of Agricultural Economics, University of Wisconsin, 1967, p. 101.
- 13/ Norman Rask and B. Prasada Rao, unpublished paper based on data from 1965 surveys, Department of Agricultural Economics and Rural Sociology, The Ohio State University.
- 14/ Charles T. Nisbet, "The Relationship between Institutional and Informal Credit Markets in Rural Chile," Land Economics, May, 1969, pp. 170-171.
- 15/ Ronald L. Tinmermeier, "New Land Settlement in The Eastern Lowlands of Colombia," Research Paper No. 13, Land Tenure Center, University of Wisconsin, December, 1964, p. 42.
- 16/ Luis Eduardo Montero, "The Allocation of Agricultural Credit in Colombia", unpublished Masters Thesis, Department of Agricultural Economics and Rural Sociology, The Ohio State University, 1969, p. 67.
- 17/ Manning Nash, "Capital Savings and Credit in a Guatemalan and a Mexican Indian Peasant Society," Capital Saving and Credit in Peasant Societies (Chicago: Aldine, 1964) edited by Raymond Ferth and B. S. Yamey, pp. 387-204; Sol Tax, Penny Capitalism (Chicago: University of Chicago Press, 1963)

- 18/ Comite Interamericano de Desarrollo Agricola, El Credito Agricola en Costa Rica (Washington, D. C.: Pan American Union, 1966) p. 162.
- 19/ U Tun Wai, op. cit., p. 80.
- 20/ Charles T. Nisbet, "Interest Rates and Imperfect Competition in the Informal Credit Market of Rural Chile," Economic Development and Cultural Change, October, 1967, pp. 73-90.
- 21/ Stitzlein, op. cit., p. 29.
- 22/ Lending by merchants for specific purchases may, of course, mask the real charges associated with the lending. Purchase price adjustments may substitute for interest as payment for use of capital. None of the studies available on Latin America explore this in any great detail, however.
- 23/ Note articles by Anthony Bottomley: "The Cost of Administering Private Loans in Underdeveloped Rural Areas", Oxford Economic Papers, June, 1963, pp. 154-163; "The Structure of Interest Rates in Underdeveloped Rural Areas," Journal of Farm Economics, Vol. 46, No. 2, May, 1964, pp. 313-322; "The Premium for Risk as a Determinant of Interest Rates in Underdeveloped Rural Areas," The Quarterly Journal of Economics, Vol. 77, 1963, pp. 637-647, and "The Determinations of Pure Rates of Interest in Underdeveloped Areas," The Review of Economics and Statistics, August, 1964, pp. 301-304.
- 24/ For example, Hopper recently has argued for India that the importance of credit in the technological-change process has been oversold. W. David Hopper, "Investments in Agriculture: The Essentials for Payoff," in Strategy for the Conquest of Hunger: Proceedings of a Symposium Convened by the Rockefeller Foundation, Rockefeller University, New York, April 1 and 2, 1968.
- 25/ Norman Rask and B. P. Rao, "Modernization of Developing Agriculture: A Brazilian Experience," paper in process, Department of Agricultural Economics and Rural Sociology, The Ohio State University.
- 26/ No single review article draws together this research. Those wanting additional information on this point might review the research and discussion stirred up by T. W. Schultz, Transforming Traditional Agriculture (New Haven, Conn.: Yale University Press, 1964).
- 27/ The dozen or so papers presented at the May, 1969, "Spring Review on New Cereal Varieties," sponsored by the Agency for International Development, Washington, D. C. were rather conclusive in this regard. An excellent summary of the issues related to these new cereal varieties is presented by Lester Brown, Seeds of Change (New York: Praeger, 1970).

- 28/ For example, see: D. W. Adams and others, El Credito Supervisado en la Reforma Agraria Colombiana: Un Estudio Evaluativo, (Bogotá, Colombia: Centro Interamericano de Reforma Agraria, 1966); Ronald Tinnermeier, "Programa de Evaluación del Credito Supervisado," Preliminary report submitted to the Agency for International Development in Lima, Peru, June, 1968; Charles T. Nisbet, Supervised Credit Programs for Small Farmers in Chile:, Inter-American Economic Affairs, Autumn, 1967, pp. 37-54; William George Hoerger, "Participants in a Pilot Supervised Credit Program: A Comparison of 20 Colombian Small Farms in 1965 with 1961," unpublished M. S. Thesis, Department of Agricultural Economics and Rural Sociology, The Ohio State University, 1968; Harold J. Christ, "Evaluation of the Supervised Credit Program in Venezuela, March, 1967; and José Paulo Ribeiro and C. R. Wharton, Jr., "The ACAR Program in Minas Gerais, Brazil" in Subsistence Agriculture and Economic Development, edited by Clifton R. Wharton, Jr. (Chicago: Aldine, 1969) pp. 424-438.
- 29/ For example, see Judith Tendler, "Agricultural Credit in Brazil", unpublished report to USAID Mission, Brazil, October, 1969.
- 30/ For example, W. Arthur Lewis, "Economic Development with Unlimited Supplies of Labor," Studies in Economic Development, edited by B. Okun and R. W. Richardson (New York: Holt, Rinehart, and Winston, 1961) p. 2.
- 31/ Nathaniel H. Leff in his article "Marginal Savings Rates in the Development Process: The Brazilian Experience," The Economic Journal, September, 1968, pp. 610-623, suggests that aggregate savings rates have declined in Brazil during the past two or three decades. The lack of growth in institutional savings throughout Latin America may, therefore, indicate relatively low rates of voluntary saving throughout the various economies.
- 32/ In Colombia, for example, the Caja Agraria which handles about one-half of the country's institutional savings only pays a four-percent rate of interest on their savings; i.e., a rather healthy negative real rate of interest.
- 33/ Gilbert T. Brown, "Interest Rates and Savings: A Case Study of Korea," unpublished manuscript, Agency for International Development, Washington, D. C., December 5, 1969.
- 34/ Anand G. Chandavarkar, "Interest Rate Policies in Developing Countries," Finance and Development, No. 1, 1970, pp. 19-27.
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- 36/ Kelso Lee Wessel, "An Economic Assessment of Pioneer Settlement in the Bolivian Lowlands," unpublished Ph. D. Thesis, Department of Agricultural Economics, Cornell University, Ithaca, New York, June, 1968, pp. 152-156; Haralambos Simeonidis, "New Farm Income and Potential for Capital Accumulation on Livestock Farms: Rio Grande do Sul, Brazil," unpublished M. S. Thesis, The Department of Agricultural Economics and Rural Sociology, The Ohio State University, 1968, pp. 58-60; and Emil B. Haney, Jr., "The Economic Reorganization of Minifundia in a Highland Community of Colombia," unpublished Ph. D. Thesis, Department of Agricultural Economics, University of Wisconsin, 1969, pp. 271-276.